

IN THE CLAIMS:

**1. (Canceled)**

**2. (Canceled)**

**3. (Currently Amended)** A transmitter comprising:

a demultiplexer responsive to an applied input signal for developing a L plurality of at least two signal streams, and

L a like plurality of channel coding/space-time coding transmitters, each responsive to a different signal stream of said plurality of signal streams, and each carrying out channel coding followed by space-time coding, said channel coding/space-time coding transmitters developing rates  $R_i$   $i=1,2,...,L$ , that are not identical to each other.

**4. (Currently Amended)** The transmitter of claim 3 where each of said channel coding/space-time coding transmitters comprises:

a channel coding encoder of rate  $R_i$ ,

a space-time encoder responsive to output signal of said channel ~~code~~ coding encoder,

a mapper and pulse shaping circuitry responsive to said space-time encoder, and ~~pulse shaping circuitry responsive to said mapper, and~~

at least two antennas for transmitting a space-time coded signal created by said space-time encoder mapped by said mapper, and conditioned by said pulse shaping circuitry.

**5. (Canceled).**

**6. (Currently Amended)** The transmitter of claim 4 where said ~~demultiplexer develops an L plurality of signal streams, where said channel coders in said L channel coding/space-time coding transmitters develop~~ rates  $R_i$   $i=1,2,...,L$ , ~~that are such that~~

$$R_1 > R_2 > \dots > R_L$$

7. **(Currently Amended)** The transmitter of claim 4 where said channel ~~code~~ coding encoder performs trellis encoding.

8. **(Currently Amended)** The transmitter of claim 4 where said channel ~~code~~ coding encoder performs convolutional encoding.

15. **(Currently Amended)** A transmitter comprising:  
a demultiplexer responsive to an applied input signal for developing an  $L$  ~~plurality~~  
~~of at least two~~ signal streams where  $L$  is at least two, and  
 $L$  a like plurality of channel coding encoders  $i=1,2,\dots,L$ , each responsive to a  
different one of said plurality of signal streams and developing codes at  $R_i$ , where the  
rates for different values of index  $i$  are not identical to each other, and  
 $L$  a like plurality of a space-time coding transmitters, each responsive to a  
different one of said channel coding encoders.

16. **(Currently Amended)** The transmitter of claim 15 where each of said space-time coding transmitters comprises:

a space-time encoder responsive to input signal of said space-time coding transmitter,  
a mapper and pulse shaping circuitry responsive to said space time-encoder, and  
~~pulse shaping circuitry responsive to said modulator, and~~  
at least two antennas for transmitting a space-time coded signal created by said space-time encoder, mapped by said mapper, and conditioned by said pulse shaping circuitry.

17. **(Canceled)**

18. **(Currently Amended)** The transmitter of claim ~~17~~ 15 where said demultiplexer develops an  $L$  plurality of signal streams, where said channel coding encoders develop rates  $R_i$   $i=1,2,\dots,L$ , that are such that  $R_1 > R_2 > \dots > R_L$ .

**19. (Currently Amended)** The transmitter of claim ~~17~~ **15** where said demultiplexer develops an  $L$  plurality of signal streams, where said channel coding encoders develop rates  $R_i$   $i=1,2,\dots,L$ , that are such that  $R_1 < R_2 < \dots < R_L$ .

**20. (Previously Presented)** The transmitter of claim **15** where said channel coding encoder performs trellis encoding or convolutional encoding.